

## **IN THE CLAIMS**

1. (Currently Amended) An automatic gain controller operating on a quadrature modulated communication signal having amplitude modulated and phase modulated components, comprising: a logarithmic detector providing logs of amplitudes of the quadrature modulated signal and a first analog to digital converter for converting the logs of the amplitudes of the quadrature modulated signal into digital values of the logs; the controller characterized by comprising:

a limiting amplifier receiving the quadrature modulated communication signal and limiting the quadrature modulated communication signal to produce a digital signal ~~for producing phase information corresponding to real and imaginary signal components of the quadrature modulated communication signal;~~

~~a logarithmic detector receiving the quadrature modulated communication signal for producing an analog representation of the power of the received signal;~~

an I and Q demodulator for demodulating the digital signal produced by the limiting amplifier into I and Q components;

an I analog to digital converter for converting the demodulated I components into digital values of the I components representing phase information of an I portion of the quadrature modulated signal; and

a Q analog to digital converter for converting the demodulated Q components into digital values of the Q component representing phase information of a Q portion of the quadrature modulated signal

~~outputs of said limiting amplifier and said logarithmic detector being utilized to reliably obtain amplitude modulated information from the quadrature modulated communication signal.~~

Claims 2-5 (Cancelled)

6. (Currently Amended) The automatic gain controller of claim 1 ~~wherein~~ further characterized by the logarithmic detector has a response time faster than 1 unit of transmitted information which may be a chip, a bit or a symbol.

Claim 7 (Cancelled)

8. (Currently Amended) The controller of claim 2 1 wherein further characterized by comprising the a second analog to digital converter coupled to the limiting amplifier has a sampling rate ~~which is sufficiently high~~ to provide digital conversion of the phase information to avoid the need for a demodulator.

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9. (New) The controller of claim 1 further characterized by the logarithmic detector being coupled to the first analog to digital converter.

10. (New) The controller of claim 1 further characterized by multiplying the digital values of the real components with the digital value of the log and multiplying the digital values of the imaginary components with the digital value of the log.